

Application No. 10/050,346

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (previously presented) A method of classifying media comprising:
 - 2 generating a probabilistic input-output system having at least
 - 3 two input parameters and having an output which has a joint dependency on
 - 4 said input parameters, said input parameters being associated with image-
 - 5 related measurements acquired from imaging textural features which are
 - 6 characteristic of different classes of media, said output being an identification
 - 7 of a media class;
 - 8 imaging a medium of interest to acquire image information
 - 9 regarding textural features of said medium of interest, said textural features
 - 10 being related to structure of said medium of interest;
 - 11 determining said image-related measurements from said image
 - 12 information; and
 - 13 employing said probabilistic input-output system to associate
 - 14 said medium of interest with a selected said media class, including using said
 - 15 image-related measurements determined from said image information as said
 - 16 input parameters.
- 1 2. (original) The method of claim 1 wherein generating said probabilistic
 - 2 input-output system includes relating texture-dependent vectors (x) to media-
 - 3 identification outputs (y), said input parameters being parameters of said
 - 4 texture-dependent vectors.
- 1 3. (original) The method of claim 2 wherein generating said probabilistic
 - 2 input-output system includes using mean values (μ) of the reflectivities of said
 - 3 medium classes and standard deviations (σ) of said reflectivities as said input
 - 4 parameters.

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1 4. (previously presented) The method of claim 1 further comprising setting
2 print parameters for applying print material on said medium of interest,
3 including basing settings of said print parameters on said output of said
4 probabilistic input-output system.

1 5. (previously presented) The method of claim 1 wherein generating said
2 probabilistic input-output system includes:
3 imaging a plurality of samples of each of said media classes;
4 calculating said image-related measurements for each of said
5 samples that are imaged;
6 on a basis of said input parameters that are associated with
7 said image-related measurements, mapping each said sample in a multi-
8 dimensional data distribution to form a cluster-weighted model (CWM) in
9 which joint probability densities established by said mapping are used to
10 define probability clusters within said data distribution; and
11 associating said probability clusters with said media classes.

1 6. (previously presented) The method of claim 5 wherein said associating
2 said probability clusters includes forming a look-up table which correlates said
3 probability clusters with said media classes.

1 7. (previously presented) The method of claim 1 wherein said imaging
2 includes projecting light onto said medium of interest at an angle of less than
3 45 degrees relative to an imaged surface of said medium of interest.

1 8. (previously presented) The method of claim 7 wherein said imaging further
2 includes detecting surface features having dimensions of 100 μm or less.

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- 1 9. (previously presented) The method of claim 1 wherein said imaging
2 includes projecting light onto said medium of interest at an angle greater than
3 45 degrees relative to an imaged surface of said medium of interest, said
4 image-related measurements being specular measurements.

10-20. (withdrawn)

- 1 21. (currently amended) A method of performing media classification with
2 respect to a plurality of different media classes, the method comprising:
3 acquiring statistics about textural features for the different media
4 classes; and
5 generating a probabilistic input-output system having at least
6 two input parameters and having an output which has a joint dependency on
7 said input parameters, said input parameters being associated with the
8 statistics, said output being an identification of a media class.

- 1 22. (currently amended) A method of classifying a medium of interest with
2 respect to a plurality of different media classes, the medium having textural
3 ~~textual~~ features, the method comprising:
4 acquiring image information about the textural features of said
5 medium;
6 generating statistics about the textural ~~textual~~ features from the
7 acquired information; and
8 using a probabilistic input-output model to discriminate the
9 medium against the media classes, including using the statistics as input
10 parameters to the model.

- 1 23. (previously presented) A system for performing the method of claim 22.

- 1 24. (previously presented) A printer for performing the method of claim 22.